questionnaire. Whatever the level of pain reduction, the WTP value evaluated was different before and after surgery. The WTP were not correlated to the patients' incomes. **CONCLUSIONS:** Although short-lived, avoidance of postoperative pain may have considerable value to patients undergoing a heavy surgery. These findings may have important consequences for selection of emerging analgesia technologies.

WP3

ASSESSING THE WILLINGNESS-TO-PAY (WTP) FOR INTRADERMAL INFLUENZA VACCINATION IN AUSTRALIA USING DISCRETE CHOICE METHODOLOGY

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OBJECTIVES: Influenza causes significant morbidity and mortality particularly in the elderly where the vast majority of influenza related deaths occur among people aged ≥65 years of age. Vaccination is the most effective way to prevent influenza and its associated complications. Studies have shown that administering the influenza vaccine via the intradermal (ID) route results in significantly superior immune responses compared with intramuscular (IM) administration. A WTP study using discrete choice conjoint analysis (CA) was designed to determine participant's preference for ID influenza vaccination over the currently available IM injection. **METHODS:** Australians individuals aged 65 years and older were presented with a set of 12 pairs of choices describing the two vaccine types; 11 choices to determine WTP for variable levels and one to detect irrational trades. Each pair contained information for IM and ID vaccines regarding efficacy, adverse event profile, administration and cost. Values were randomly allocated based on the ranges for each attribute and each participant received a bespoke set of choices. The questionnaire sought basic demographic information and was completed after a short presentation on influenza. **RESULTS:** Ninety people aged ≥65 years were recruited to participate in the study. Participants had an average age of 71.1 years (SD = 4.0) and more than half (n = 50, 56%) stated that they get immunised against influenza annually. Both the adjusted and unadjusted analyses for the CA showed a statistically significant preference for ID injection with participants willing to pay an additional $25.80 for an ID vaccine and $26.80 when adjusted for demographic variables. The efficacy difference of ID vs. IM was responsible for driving preference and the ID needle also added to the overall WTP for the vaccine and was also statistically significant. **CONCLUSIONS:** The participants clearly preferred to be vaccinated against influenza with an ID vaccine over an intramuscular vaccine.

WP4

DISCRETE CHOICE EXPERIMENT TO DETERMINE WILLINGNESS-TO-PAY FOR GASTROESOPHAGEAL REFLUX DISEASE (GERD) TREATMENT

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OBJECTIVES: To assess Canadian patient preferences and estimate willingness to pay for symptoms relief for gastroesophageal reflux disease (GERD) treatment. **METHODS:** The study was a cross-sectional design, recruiting patients enrolled in a multi-centre clinical trial from 17 Canadian clinical sites. Preferences and willingness to pay were estimated using a discrete choice experiment (DCE) informed by focus groups and clinical literature. The experimental design considered orthogonality, balance and efficiency. The pen-and-paper-administered DCE survey consisted of 14 discrete choice tasks. Patients chose between 3 different GERD treatments described by 6 attributes: GERD medication cost, when medication was taken, diet changes, daytime discomfort due to GERD, sleeping discomfort due to GERD and side effects. Additional data were gathered on health status, health-related quality of life, and sociodemographic characteristics **RESULTS:** 361 of 379 subjects completed the DCE. Mean age was 57 years (S.D. 16); 48% were male; 41% paid some portion of prescription drug costs; a majority rated their GERD symptoms as mild to moderate. Avoiding side effects was the most important attribute, followed by sleeping discomfort, daytime discomfort, dietary changes and medication cost. Treatment choice was least affected by when the medications were to be taken. Patients were willing to pay (WTP) $16 for mild rather than moderate side effects and $14 for complete relief of nighttime symptoms rather than 1–3 episodes per month. Patients with less severe GERD symptoms were WTP more to avoid side effects. Older patients were less WTP for better relief than younger patients. Avoiding sleeping discomfort was more important to women. **CONCLUSIONS:** Patients are WTP more for a GERD medication that avoids side effects, nighttime and daytime discomfort and dietary changes. Differences in preferences were found by gender and age. This information can help to guide physicians and patients in choosing GERD treatments.

POSTER SESSION I

HEALTH CARE USE & POLICY STUDIES – Consumer Role in Health Care

PHP1

THE COMMERCIALIZATION OF HEALTH CARE ALLOCATION: CONSUMERS' TOTAL AND DISTRIBUTIONAL HEALTH OUTCOME PERCEPTIONS AND ATTITUDE TOWARDS FLEXIBLE CARE ACCESS PRICING STRATEGIES BY HOSPITALS

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OBJECTIVES: Increased competition in the health sector has led hospitals and other care institutions to explore new allocation mechanisms that move away from traditional expert based care allocation to more commercially based allocation mechanisms. Little is known however about consumer perceptions and evaluations of new commercial (price based) allocation mechanisms and how these perceptions and evaluations may differ between individuals and treatments. This paper investigates how consumers evaluate (new) hospital care allocation mechanisms. **METHODS:** We used data of 577 respondents from an American consumer panel. To test the framework confirmatory factor analysis was done and random parameter regression models were estimated. **RESULTS:** We found that offering individuals the opportunity to pay more for a higher chance of treatment (flexible pricing) affects their perceptions of both the total ($p < 0.005$) and distributional health outcomes ($p < 0.001$) of a hospital's care, which in turn affect consumer attitude towards the allocation mechanism ($p < 0.001$ and $p < 0.001$). Furthermore, we found that the effects of these two key collective outcome perceptions on consumer attitude are moderated by the type of medical condition (life saving vs. life improving) ($p < 0.001$ and $p < 0.003$), by age ($p < 0.002$ and $p < 0.001$), and to a lesser extent by gender ($p < 0.01$ and n.s.). **CONCLUSIONS:** Knowing how consumers evaluate allocation mechanisms is important for hospitals because less acceptable allocation mechanisms may scare away patients and decrease community support towards the hospital. Therefore our findings can be relevant and helpful for hospitals that consider implementing new allocation policies.

PHP2

PREDICTING PERSISTENT FREQUENT USE OF THE PRIMARY HEALTH CARE SERVICES IN A FINNISH SETTING: A BAYESIAN APPROACH

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OBJECTIVES: Frequent attenders (FA) generate a large proportion of clinical workload, referrals and prescriptions in the primary care (PC). The aim of this study was to examine factors, which predict frequent attendance of the PC services in a long-term follow-up. Factors explaining the long-term frequent use of PC services have not been previously explored. **METHODS:** A prospective cohort study without intervention was carried out in the primary health care centre in Tampere, Finland. From a random sample of 200 PC FAs, 85 patients participated in the study. All participants were PC FAs in the first study year. After four years follow-up the patients were classified as persistent or temporary FAs. A patient was considered as a persistent FA, if he visited the health centre at least 8 times a year for at least 3 out of 4 follow up years. In addition to clinical assessment, also the patient reported outcome assessment was comprehensive including e.g. 15D, BDI, SOC-13, TAS-20, SCL (somatisation part), Whitely Index, patient satisfaction, fear of death, and alcohol consumption. 59 different variables were examined as potential predictors using P-course, a web-based Bayesian prediction tool. The models were assessed with accuracy, and predictions with posterior odds and credibility intervals. **RESULTS:** According to the predictions, the most influential predictive factors related to persistent FAs were female gender, body mass index above 30, former frequent attendance, fear of death, alcohol abstinence, low patient satisfaction and irritable bowel syndrome. New observations related to FAs were high body mass index, alcohol abstinence, fear of death and irritable bowel syndrome. **CONCLUSIONS:** Our Bayesian model can be used for proactive modelling of persistent FAs in uncertain situations. However, before its use in practice, the external validity of the model will need to be defined, because we only used partitioning in the accuracy assessments and not independent data.

PHP3

EFFECTS OF THE IMPLEMENTATION OF AN ANNUAL CO-PAYMENT LIMIT FOR PRESCRIPTION DRUGS IN AUSTRIA

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OBJECTIVES: The social security system in Austria constringes insured people to pay a fixed co-payment of €4.80 per prescribed drug unit. Under certain conditions insured are exempted (e.g. very poor people). In 2008 the Austrian government implemented a co-payment limit for prescription drugs, called REGO. If the insured have paid 2% of their annual net income for co-payment rates, they are exempted from these co-payments for the rest of the year. We analyzed the effects of REGO on the prescription volume and therewith demand and on the total expenditures for prescription drugs. **METHODS:** We estimated hypothetical expenditures and prescriptions for 2008 under the assumption that REGO had not been implemented, using the historical data of 2006, 2007 and 2008 on different autoregressive process models. **RESULTS:** Our analysis showed that the demand increases when prescription drugs become free, and

therewith is price elastic. We estimate that approximately 40% of the increase in prescription volume results from REGO. Additionally to the increase in expenditures the sickness funds are facing a loss of income as less co-payment rates are paid. Prescriptions with prices lower than the co-payment rate are not paid by the insured anymore, but by the sickness funds. These low-price prescriptions cause a dramatic increase in volume, however, not a decisive increase in total expenditures. **CONCLUSIONS:** The time courses allow us to evaluate the effects of REGO. Furthermore they reveal information about the behaviour of the demand function, when the price drops to zero. The intention of REGO is to improve equity by protecting poorer and heavy users of prescription drugs from the financial burden of co-payments. Demand increases, when REGO reduces the price for prescription drugs to € 0. This could indicate an improvement in equity and access, however, affects on efficiency have to be shown in further analysis.

PHP4

USE OF FREE MEDICINE SAMPLES, DOCTOR PATIENT COMMUNICATION AND COST-RELATED NON-ADHERENCE AMONG OLDER ADULTS

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OBJECTIVES: The distribution of free samples to patients in the US, the retail value of which is US$20 billion annually, is controversial. Proponents assert that free samples improve medication access for low-income patients while opponents argue free sample availability drives the choice of expensive, brand-name pharmaceuticals. It is critical to shed light on the benefits and costs of free samples for older adults, in particular, given their high drug cost burden. Our objective was to determine the proportion of older adults receiving free samples, and to examine the association between free sample receipt and communication with physicians and cost-related non-adherence to medicines. **METHODS:** In 2006, we conducted a national telephone survey of persons age 65 and older in the U.S., over-sampling those with low-incomes. The survey included several questions related to prescription drug insurance coverage, medication use and doctor-patient communication. **RESULTS:** Half of older adults surveyed had received free samples from their doctors at least once in the past 12 months, with 21% receiving samples more than once. Two thirds of seniors who had talked to their doctor about the cost of medicines they are taking received free samples compared to 43% of those who did not have such discussions. Seniors who received free samples were less likely to agree there is nothing their doctor can do to help lower drug costs (40% vs. 47%) than those who did not receive samples. Free sample receipt was associated with a lower risk of cost-related non-adherence (failing to fill prescriptions, skipping or reducing doses due to cost) (31% vs. 26%). **CONCLUSIONS:** Receipt of free samples is common among older adults and appears to increase with discussions of drug costs between doctors and patients. Free sample receipt may help reduce cost-related non-adherence, however, further study is needed to shed light on these behaviors.

HEALTH CARE USE & POLICY STUDIES – Diagnosis Related Group

PHP5

RISK OF DEATH AND HOSPITAL LENGTH OF STAY ASSOCIATED WITH CLINICAL EVENTS POTENTIALLY CAUSED BY NEUROMUSCULAR BLOCKADE REVERSAL AGENTS

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OBJECTIVES: Our aim was to estimate the hospitalization length of stay (LOS) and risk of death within hospitalization, associated with the occurrence of post-operative residual curarization (PORC) and adverse events (AE) possibly or probably related to neuromuscular blockade reversal agents (NMBRA) use. **METHODS:** Data was obtained from hospitalizations occurring in Portuguese public hospitals in 2007. Surgical procedures from (ICD-9-CM CSP codes): central nervous (01–05), endocrine (06–07), respiratory (30–34), cardiovascular (35–39), hematologic and lymphatic (40–41) and digestive (42–54) systems were selected due to their high potential for NMBRA use. According to clinical expertise and ICD-9 diagnosis classification, AE and events PORC were grouped into the following outcomes: bronchospasm, dysphagia or dyspepsia, cardiac dysrhythmias, tachycardia, hypertension, hypotension, xerostomia, nausea, vomiting or abdominal pain, central nervous system complications and allergic, psychological, respiratory, sensation and visual disturbances. Data consisted of admission and discharge date, age, gender, primary and secondary diagnosis, primary and secondary surgical procedures. No data was available regarding the type of NMBRA used. Within hospital, risk of death was estimated with parametric survival (Weibull) regression models. LOS was estimated through negative binomial regression models. **RESULTS:** The analysis included 136,150 surgical procedures (55.0% female and mean(SD) age 54.2(18.9) years). Rates of AE and PORC were 25.5% and 3.0%, respectively. Crude death rate was 2.8%. The risk of death was 1.3 (95%CI: 1.2–1.4) times higher in patients with AE and 2.0 (95%CI: 1.9–2.2) times higher in patients with PORC, adjusted for other covariates. The mean LOS was 5.3 days (<30 days, n = 130,254). LOS was significantly increased both in patients with at least one AE (2.2 days, 95%CI: 2.1–2.4) or at least one PORC event (7.4 days, 95%CI: 6.7–8.2). **CONCLUSIONS:** Post-operative residual curarization and adverse events possibly or probably related to neuromuscular blockade reversal agents use are associated with increased inpatient death and extended hospital length of stay.

PHP6

ACUT CARE HOSPITAL BED OCCUPANCY RATE IN HUNGARY BETWEEN 2000 AND 2008

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OBJECTIVES: The occupancy rate is a calculation to show the actual utilization of the inpatient health facility for a period. It is expressed as a percent. Our aim was to define occupancy rates between 2000 and 2008 in the Middle-European country, Hungary. Health care of its 10 million inhabitants was "secured" by 59.584 beds until 31st March 2007 and by 43.943 beds afterwards. **METHODS:** To calculate the average occupancy rate for a typical one-year reporting period, two data items are needed. The "Inpatient Days of Care" and the "Bed Days Available". Data were got from the National Health Insurance Fund Administration. To calculate occupancy rate the (Inpatient Days of Care / Bed Days Available) x 100 formula was used. **RESULTS:** The highest occupancy rate between 2000–2008 in Hungary was 76.3% in 2001. From that time the occupancy rate continuously decreased independently of the decrease of beds available. The figure reached 66.9% in 2007. In 2008 a slight increase could be seen (70.7%), which seemed not to be significant, but in comparison to the decrease of beds (26%) at spring of 2007. Examining the gathered monthly data, it was realized that in February bed occupancy was the highest, 77.2%. Examining occupancy rate for calendar days, it got the highest figure on Thursday, 77%. In order to define how many beds are really needed, it has to be examined occupancy rate on every single calendar day. Evaluating the data it was observed that there were days when occupancy rate was higher than 91% but regularly reached 80%. **CONCLUSIONS:** On the basis of the above mentioned it can be proved that planning bed number, in addition to yearly average, the daily occupancy rate has to be considered, as stress on health care is highly fluctuating due to unplanned, sudden cases.

PHP7

BED OCCUPANCY RATE OF HUNGARIAN INTENSIVE CARE UNITS

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OBJECTIVES: Cost calculations show the importance of the utilisation of the capacity. The aim of the study is to analyse the percentage of bed occupancy in the intensive care units in Hungary according to the Diagnosis related Groups (DRG) system. **METHODS:** Data were derived from the National Health Insurance Fund Administration (NHI). The bed occupancy rate of the first eleven months of the year 2008 were analysed and compared to the mean of the Hungarian rate and to the means of two other recognized specialties. **RESULTS:** The number of beds was not fluctuated throughout the examined eleven months. The bed capacity of the Hungarian hospitals was 48.6 beds per 10,000 people. 2.82% of the total hospitals beds, 1.37 beds per 10,000 people, were in intensive care units. The departments of internal medicine had 14.54% and the departments of surgery had 10.95% share in the Hungarian hospital beds. The percentage of occupancy of the intensive care units was 58.2%, of the departments of internal medicine was 75.63% and of the departments of surgery was 65.29%. The total Hungarian hospitals occupancy ratio was 69.84%, more than 10% higher compared to the intensive units. **CONCLUSIONS:** Without the variable costs of the treatments, the outlay of an intensive care unit is remarkable. A better occupancy of the intensive care units can increase the reimbursement for the hospitals or the decreases in the number of inpatient beds can be a cost-reduction strategy in the Hungarian Diagnosis-related Groups (DRG) financing system.

HEALTH CARE USE & POLICY STUDIES – Diesease Management

PHP8

SURVEY ON THE MANAGEMENT OF ORAL ANTICOAGULATION THERAPY (OAT) IN ITALY

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OBJECTIVES: The management of the large patient population chronically treated with oral anticoagulation therapy (OAT) poses organisational challenges that in Italy are traditionally approached with centralised procedures, relying on hospital-based clinics. However, the availability of near-patient testing devices for the monitoring of OAT effectiveness (INR measurement) allows for alternative or complementary management models (patient self-monitoring—PSM). PSM has been proven effective and safe, and could be attractive, especially in the perspective of the patient, whose life could be severely affected by the costs and times implied in the process of the OAT management. In order to assess PSM potential economic impact in Italy, there is a need for real-world economic and organisational data. This study was planned to investigate treatment patterns and to estimate the average costs borne by OAT patients in Italy. **METHODS:** A 19-item questionnaire, investigating the characteristics of the patient, his/her therapeutic regimens, the structures involved and the distances from home, the frequencies and the amount of time implied in the management of the OAT,